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Metacognitive Strategies In Reading Comprehension Of Education Majors

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Abstract

Test results after educational reforms in Russia are served to measure schools' and teachers' efficiency. In terms of preparing students for testing, teachers focus more on drilling students on the right answers rather than working on the content. This study looks at how well students majoring in education were able to spontaneously use metacognitive strategies for reading comprehension. The results of the experiment show that only 7% education majors sought to establish logical connections between the text fragments in multiple-choice assessment. These data are compared with the data, received in 1990-s.

Keywords: comprehension monitoring activities; expository text; styles of learning;

1. Introduction

Recent educational reforms in Russia have introduced multiple-choice tests into teaching practice at every level of elementary, secondary and higher education. This assessment method has become predominant and very popular in our country. The global introduction of testing in education and its substitution for all other types of control of pre-reform Russian school is one of the factors leading to serious pedagogical and psychological problems of training activities. The direction in which Russian secondary and higher school are developed is the opposite to the world trends, where the aim of educators (teacher or professor) is to vary instructions and assessment to meet the needs of more learners.

2. Literature Review

One of the problems, which have appeared, is the assessment of the educational level of schools and higher schools. Test results are served to measure schools' and teachers' efficiency. In terms of preparing students for

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testing, teachers focus more on drilling students on the right answers rather than working on the content. As the result, students subconsciously begin to orient themselves to memorizing and recognizing the answers. Such concentration on strategies of recognition and random choice is known to be one of the drawbacks of multiple-choice testing (Tuckman, 2002).

There is a description of such phenomenon as "felling-of-knowing" in the psychology of memory. It is one of the forms of metamemory, when one can't give the right answer himself, but can recognize it in the given list or pick up a plausible answer (Lovelace, 1987, Cavanaugh, Perlmutter, 1982). In a situation of multiple-choice test students divided into two groups. After receiving the question some students try to formulate the answer in the inner (which requires a high level of knowledge), and then select one of the options. The other students, who are not able to generate the solution, choose the answer by casual sorting or recognition. The problem, which has appeared after introducing multiple-choice tests, is drilling students on remembering right answers, but hot on thinking about content. Some facts about such "trainings" of memory strategies in secondary and higher schools are known, but mostly they are hidden.

In the 1920s the effect of memory set was described in Russia. This effect depends on requirements of the subsequent testing of remembered information. One of these requirements is the method of control. L.S. Vygotsky wrote that learning goes in different ways depending on the assessment types: full answer or the identification of information (Vygotsky, 1956). This problem was investigated by Russian psychologists A.A. Smirnov and P.I. Zinchenko. It was shown that, firstly, the deliberate memory set prevents from understanding of material, and secondly, the set of the strategies to understand (work with the text, which opens the main ideas in the material, logical relationships), on the contrary, mobilizes the resources of incidental memory (Smirnov, 1956, Zinchenko, 1961). This effect is known as depth processing effect (Craic, Lockhart, 1972).

For American and European pedagogical system methods like multiple-choice tests are traditional and have been used for a long time. For example, R. Sternberg, who is interested in different ways of teaching and assessment and style profile, shows that multiple-choice tests can benefit children with such style of thinking and learning as the executive and the conservative ones (Sternberg, 1994). The students with this style like to follow directions, do what they are told, learn assigned information. R. Sternberg analyzed the types of instructional and assessment activities a person prefers and discovered that executive style connects with such method of instruction as memorization. E. Grigorenko and R. Sternberg discovered that the longer teachers teach the more executive and conservative they become. Many educators are best at teaching children who match their own styles of thinking and learning (Sternberg, Grigorenko, 1993). Their research shows that students' styles, at least to some degree come to match the teachers' styles just as teachers' styles come to match the predominant style profile at their school.

Some investigators consider that students learn in different ways and have two antagonistic styles of learning: "superficial" and "deep". The first ("superficial" style) is characterized by the desire to remember the material, while the second ("deep" style) - by the desire to understand the material, to assimilate the knowledge from past experiences (Kelly, 2000). It is considered that the effect of semantic processing of the material is determined by the fact if a student uses metacognition, as well as metacognitive strategies of understanding and learning. In other words, the generalized idea of what it means to learn this type of information, determines the settings and the choice of the methods to work with educational material, made by students, which naturally affects the quality of its mastering. (Bransford, Ilyasov). F. Craik, B. Chellis, B. Velichkovsky and D. Halpern showed that us metacognitive strategies in encoding information provides the best results in the multiple-choice tests.

Thus we can propose, that the newly established testing practice in Russia provokes a superficial approach to learning. Focus on amassing and reproducing knowledge trains students to see educational content as data for mere memorization, without meaningful processing or analysis, and metacognitive reading comprehension strategies, typical for a "deeper" approach, are rarely used.

This can be especially damaging in humanities and sciences, if learning tasks and problems are presented implicitly, as it is traditionally done in mathematics. It was shown in our investigation. It was shown the higher school students' ability to organize the material and to establish meaningful connections between separate fragments. The method was tested on 500 students. The technique reveals the monitoring of students' understanding and gives an indication of learning style ("superficial" and "deep"). The technique has been used for many years and has identified a significant change in the quality of metacognitive skills since 90-s (Korotaeva, 2000).

According to PIZA the survey of readers' skills of Russian students in the past decades have shown a sharp decline in the readers' culture and the removal of Russia to the 46 place. Similar results have been obtained in the studies of reading skills of high school students, carried out under the leadership of V. Sobkin.

3. Methodology

There are many factors, which have determined this situation. We are interested in the problems of professional development of the education majors: how do they use metacognitive strategies and monitor their comprehension working on the content of the text.

This study looks at how well students majoring in education are able to spontaneously use of some strategies for reading comprehension of an educational text. The specially constructed expository text contained a description and an explanation of two experiments in growing plants. The evaluation of students' reading comprehension strategies was based on the contradiction between the experiment and its explanation which would become obvious if students could establish meaningful connections between separate text fragments. The text was accompanied by several multiple-choice questions, in answering which students could refer back to the text. The first question in the given list is about possible problems in evaluating their own comprehension. We are interested in the student's notes about realizing that they don't understand or about the contradiction in the text.

Instructions to the subjects proposed to study the text on the biology to understand it. Operating time with the material was not limited. After reading the subjects were asked to report whether all clear if not to indicate the fragments, which caused the problem of understanding. After that we proposed multiple-choice test.

The main predictor of using comprehension strategies is the contradiction, indicated in the text, or logically right answer. Another predictor – contradiction, which has been reproduced in the answers.

The experiment was conducted in two groups of students:

- 70 education majors from Moscow Pedagogical Institute (experimental group);
- 61 psychology majors from Moscow State University (control group).

The students-teachers and students-psychologists (3^{d} year of study) entered University according to the results of the unified state examinations on mathematics, biology, Russian language without traditional examinations.

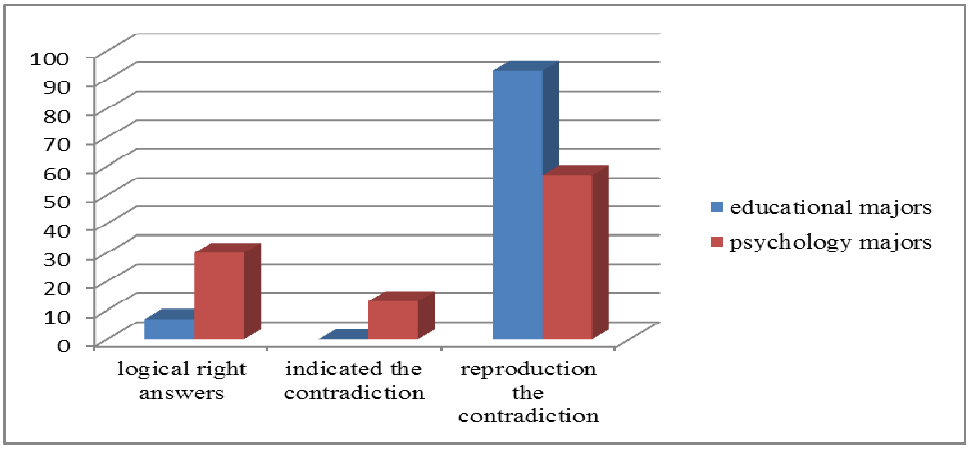
4. Analyses and Results

The experiment consists of two parts. In the first part of the experiment the subjects were given a multiple-choice test. The content of the test: the instruction, the text for learning, the list of questions and answers for choice. Time to perform this task was not limited. After multiple-choice test the subjects are proposed to write the answers for several questions (the second part of the experiment).

Results of the educational majors in the situation of multiple-choice test:
7% of the group - logical right answers, 0 % - indicated the contradiction, 93% of education majors reproduced the contradiction.

The group of psychology majors in the situation of multiple-choice test:
30% of the group - logical right answer, 13% of the group indicated the contradiction, 57% - reproduced the contradiction (Illustration 1).

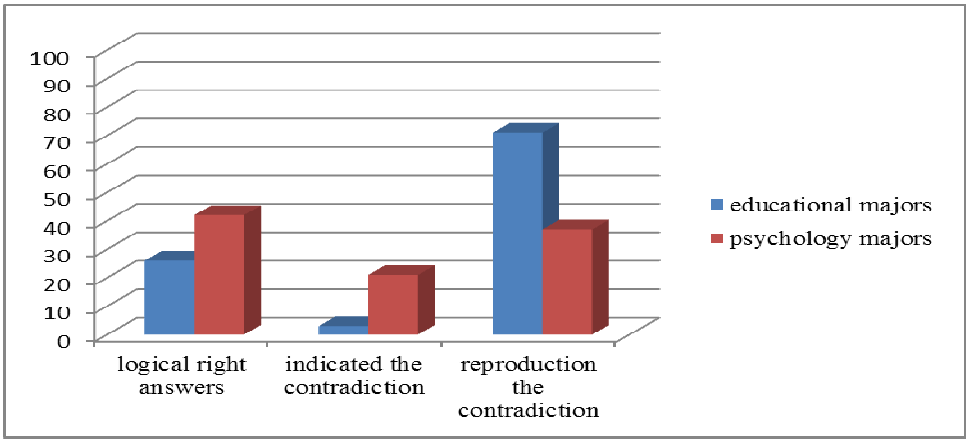
Illustration 1 Multiple-choice test



Results of the experimental group – education majors in the situation of the self-formulated answer:
3% - indicated the contradiction, 26% - logical right answer, 71% - reproduced the contradiction.

The group of psychology majors in the situation of the self-formulated answer:
21% - indicated the contradiction, 42% - logical right answer, 37% - reproduced the contradiction (Illustration 2).

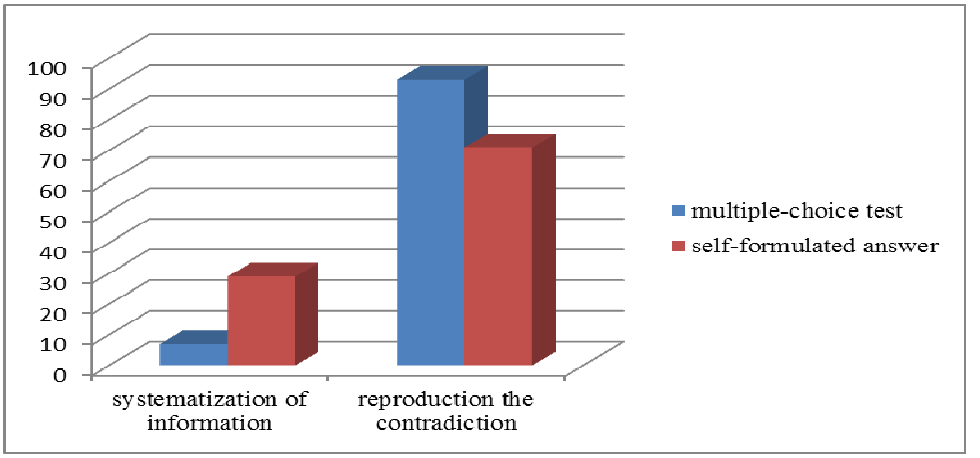
Illustration 2 Self-formulated answer



The results of the experiment show that only several education majors sought to establish logical connections between the text fragments by contrast with 43% of psychology majors. The majority of students of Moscow Pedagogical Institute do not use metacognitive strategies. 93% of them reproduced the contradiction in multiple-choice answers. The reports about comprehension problems are absent. Nobody realized understanding problems or simply could confess. This is a serious problem for professional development of future teachers.

In the second part of the experiment the educational major had to answer the questions on the text in any form. While writing their own answers many of the students reread the text, 29% established the logical connection between the fragments of the text and found the contradiction or gave logical answer, 71% reproduced the contradiction (Illustration 3).

Illustration 3 General results of the education majors group

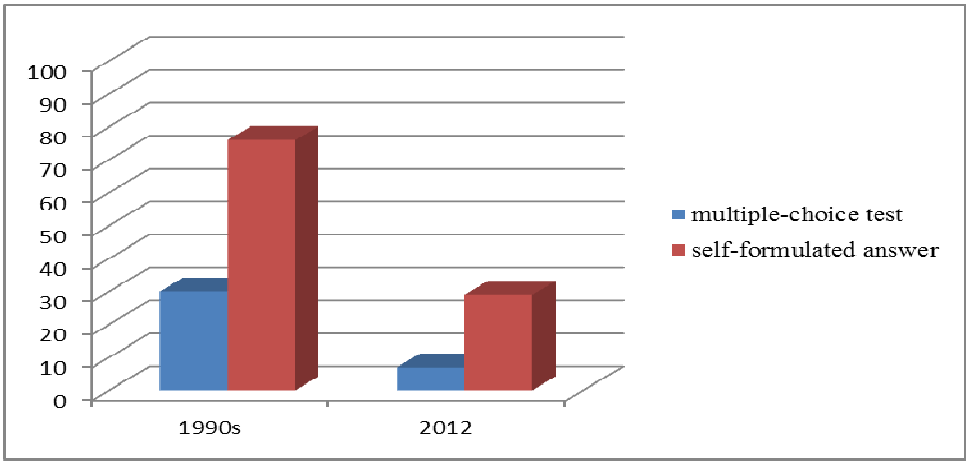


We have compared the results of this experimental group with the data obtained in the 90-s. We have conducted the similar experiment, in which took part a group of educational majors of Moscow Pedagogical

Institute (100 students). The indicators were recorded under the same criteria: systematization of information and reproduction the contradiction.

The results have showed that 30% of students, who studied more than 15 years ago, sought to establish logical connection, with self-formulation answers - 76% of the students systematized material while writing their own answers. Today 29% of the students of the experimental group have established logical connects in their answers, while 71% have reproduced the contradiction. The students from the experimental group in a situation of producing answer only in 29% of cases have established logical links, and 71% of the students have reproduced a contradiction (Illustration 4).

Illustration 4 Comparative results of education majors



5. Conclusion

We can say that the efficiency of work with expository text is very low nowadays. Students majoring in education have demonstrated extremely ineffective learning goals and metacognitive strategies. They do not use comprehension monitoring and control of their own cognitive activity. It can be stated that they demonstrate the «superficial» style of learning. The incorrect use of multiple testing in education adversely affects the professional development of future teachers. The low level of reading culture of the students of pedagogical institutes is a major problem of modern Russian education. If a future teacher does not have the skills to semantic processing of the material, we can assume he will teach his students.

The study showed that many students of the Pedagogical Institute have memory set. It is determined by the requirements of teachers, professors, assessing student work. Students majoring in education have demonstrate extremely ineffective metacognitive strategies, thus highlighting the need to broaden initial assumptions about teaching and learning among future teachers

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